

Claims

1. A method for cleaving a machine component having a bearing eye (2), especially a conrod (1) of a reciprocating-piston engine, into two bearing shells each comprising one half of the bearing eye (2), with the following steps:
 - 1.1 before the breaking process, the machine component is stuck with its bearing eye (2) onto a two-piece split mandrel (10);
 - 1.2 the bearing eye is subjected to initial stress in splitting direction, by forcing the two mandrel halves (11, 12) apart;
 - 1.3 the bearing eye (2) is positionally fixed, relative to the associated mandrel half (11), on one side of the intended splitting plane (4) by means of adjustable stops (29);
 - 1.4 by driving in a wedge (16) between the two mandrel halves (11, 12), the positionally fixed bearing shell together with the associated mandrel half (11) is split from the bearing shell fixed on the other mandrel half (12) by substantially simultaneous breaking of both sides.

2. A method according to claim 1 characterized in that, during the breaking process, the mandrel half (11) associated with the positionally fixed bearing shell is moved away from the other mandrel half (12) fixed to the frame.

3. A method according to claim 1 characterized in that,

during manufacture of the machine component, the breaking resistance of the bearing eye (2) is weakened on its inside along the intended splitting plane (4).

4. A device for cleaving a machine component having a bearing eye (2), especially a conrod (1) of a reciprocating-piston engine, into two bearing shells each comprising one half of the bearing eye (2), with the following features:
 - 4.1 it comprises a two-piece split mandrel (10), whose mandrel halves (11, 12) form a common recess (13) for driving in a wedge-driving tool (16);
 - 4.2 the circumference of the mandrel corresponds approximately to the bore of the bearing eye (2), the mandrel half (11) associated with the big-end cap (5) being disposed on a slide arrangement (22) which is movable in splitting direction, the other mandrel half (12) being fixed to the frame;
 - 4.3 the slide arrangement (22) supports two stops (29) for positionally fixing the big-end cap (5) relative to the associated mandrel half (11) on both sides without play;
 - 4.4 the conrod shank (6, 7) is fixed between the mandrel half (12) fixed to the frame and a pin retainer in the inside of the small-end eye (8) such that it has limited movement ability;
 - 4.5 the slide arrangement (22) is subjected to initial stress in splitting direction (P2), in such a way that the bearing eye (2) is subjected to an initial tensile stress assisted by the two mandrel halves (11, 12) before the breaking process.

5. A device according to claim 4,
that the stops (29) can be hydraulically actuated and in addition are blocked against slipping out in splitting direction (P2) by a mechanical correcting device (37).
6. A device according to claim 5,
characterized in that
the mechanical correcting device (37) is designed as a wedge-type deflector that can be actuated by means of a hydraulic prop (38).
7. A device according to claim 4,
characterized in that
the movable mandrel half (11) is rigidly joined to the slide arrangement (22) and in that, by means of a hydraulic cylinder arrangement (26, 27), the latter can be subjected to initial stress in splitting direction (P2) against a base frame (23) of the device.
8. A device according to claim 7,
characterized in that
the slide arrangement (22) can be subjected to initial stress against a compression spring (25) disposed between slide arrangement (22) and frame (23), such that the slide (22) is cushioned after breaking of the conrod (1).
9. A device according to claim 4,
characterized in that

the stops (29) are mounted on spherical cups (31), so that plane stop faces (30) can be oriented flush with the mating faces of the conrod end at any angular position thereof.

10. A device according to claim 4,
characterized in that
the recess (13) in the movable mandrel half (11) is formed as a slanted face (15) matched to the wedge-driving tool (16), and in that the recess (13) in the mandrel half (12) fixed to the frame has constant cross section throughout.
11. A device according to claim 14,
characterized in that
the small-end eye (8) is fixed with play in the longitudinal direction of the conrod shank (1) by a transverse pin (48) engaging therein.